WHAT IS CLAIMED IS:

1. A DUV-capable microscope objective that contains lens groups made of quartz glass and fluorite and has a DUV focus at a DUV wavelength λ_{DUV} = 235 nm as well as a short focal length, **wherein**
   a) the DUV focus encompasses a DUV wavelength region $\lambda_{DUV} \pm \Delta\lambda$, where $\Delta\lambda$ = 8 nm;
   b) the objective additionally has an IR focus for an IR wavelength λ_{IR} = 760 nm at the same focal point as the DUV focus at λ_{DUV};
   c) for which purpose a penultimate element of the objective is of concave configuration on both sides, and its object-side outer radius is much smaller than its image-side outer radius.

2. The objective as defined in Claim 1, **wherein** the penultimate element is a doublet, concave on both sides, that has the material sequence quartz glass/fluorite in the imaging direction.

3. The objective as defined in Claim 1, **wherein** the diverging penultimate element is a triplet, concave on both sides, that has the material sequence quartz glass/fluorite/quartz glass in the imaging direction.

4. The objective as defined in Claim 1, **wherein** the diverging penultimate element is a triplet, concave on both sides, that has the modified material sequence quartz glass/lithium fluoride/quartz glass in the imaging direction.

5. The objective as defined in Claim 1, **wherein** the diverging penultimate element, concave on both sides, is made up of individual lenses made of quartz glass and fluorite.

6. The objective as defined in Claim 2, **wherein** the diverging penultimate element, concave on both sides, is made up of individual lenses made of quartz glass and lithium fluoride.

7. The objective as defined in Claim 1, **wherein** the objective comprises, viewed in the imaging direction, the following schematic configuration:

   - a converging individual first lens made of quartz glass as the front lens;
   - a converging individual second lens made of fluorite;
   - a first doublet comprising a diverging third lens made of quartz glass and a converging fourth lens made of fluorite;
   - a first triplet combined of a fifth lens made of fluorite, a sixth lens made of quartz glass and a seventh lens made fluorite
   - a second triplet combined of a eighth lens made of quartz glass and a ninth lens made of fluorite and a tenth lens made of quartz glass
   - a converging lens group;
   - a penultimate diverging element which is of concave shape on both sides and whose object-side outer radius is much smaller than the image-side outer radius; and
   - a diverging doublet combined of a converging lens made of quartz glass and a diverging lens made of fluorite.

8. The objective as defined in Claim 7, **wherein** the converging individual lens and the doublet are combined into a triplet having the material sequence fluorite/quartz glass/fluorite.

9. The objective as defined in Claim 7, **wherein** it has a DUV focus in a DUV wavelength region $\lambda_{DUV} = 248$ nm ± 8 nm or in a DUV wavelength region $\lambda_{DUV} = 266$ nm ± 8 nm.

10. The objective as defined in Claim 7, **wherein** it has a DUV focus in a DUV wavelength region $\lambda_{DUV} = 248$ nm ± 8 nm and an IR focus at $\lambda_{IR} = 760$ nm and possesses the data listed in Table 1.

11. The objective as defined in Claim 7, **wherein** it has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 825 nm and possesses the data listed in Table 2.

12. The objective as defined in Claim 7, **wherein** it has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 885 nm and possesses the data listed in Table 3.

13. The objective as defined in Claim 7, **wherein** it has a DUV focus in a DUV wavelength region λ_{DUV} = 248 nm ± 8 nm and an IR focus at λ_{IR} = 905 nm and possesses the data listed in Table 4.

14. The objective as defined in Claim 8, **wherein** it has a DUV focus in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm and an IR focus at λ_{IR} = 780 nm and possesses the data listed in Table 6.

15. The objective as defined in Claim 7, **wherein** it has a DUV focus in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm and an IR focus at λ_{IR} = 785 nm and possesses the data listed in Table 7.

16. The objective as defined in Claim 8, **wherein** it has a DUV focus in a DUV wavelength region λ_{DUV} = 266 nm ± 8 nm and an IR focus at λ_{IR} = 845 nm and possesses the data listed in Table 8.

17. The objective as defined in Claim 1, **wherein** the IR focus lies between 760 nm and 920 nm.

18. The objective as defined in Claim 1, **wherein** the DUV focus lies between 200 nm and 300 nm.